

BLM MINERAL RIDGE RECREATION AREA (PWSNO 1280017) SOURCE WATER ASSESSMENT REPORT

February 24, 2003



State of Idaho Department of Environmental Quality

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Source Water Assessment for Mineral Ridge Recreation Area

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like the Mineral Ridge Recreation Area, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for BLM Mineral Ridge Recreation Area* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics and potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for BLM Mineral Ridge Recreation Area is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction.

The BLM Mineral Ridge Recreation Area well provides drinking water for picnic and hiking areas adjacent to Highway 97 on the east side of Beauty Bay. The well was drilled in 1974 into a shale formation overlying granite. It is 220 feet deep. Except for a minor variation in the casing wall thickness, the well meets current Idaho Department of Water Resources construction standards. The 6-inch steel casing extends from 2 feet above ground to a depth of 21 feet where it terminates in medium hard shale. The remaining depth of the well bore is free standing. A 20-foot deep surface seal terminates at the bottom of a clay bed lying immediately above the shale. The well produces about 3.5 gallons per minute from water bearing strata 80 to 120 feet below land surface. The static water level is 60 feet below the surface. Sanitary survey reports note that the well is not vented due to occasional artesian activity.

Well Site Characteristics.

About 20 per cent of the recharge zone delineated for the BLM Mineral Ridge Recreation Area is submerged, and roughly 10 per cent of the area encompasses the delta where a small creek empties into Lake Coeur d'Alene. Soils on the ridges on either side of the creek are classified as moderately well drained to well drained. At the well site 60 feet of medium hard shale and 10 feet of clay and 10 feet of clay, shale and topsoil lie over the water table.

Potential Contaminant Inventory.

Most of the land inside the recharge zone delineated for the Mineral Ridge well is forested. The area has been developed with a picnic area and hiking trails. There is some housing along Beauty Bay Drive and roads on the hill opposite the recreation area. Potential contaminant sources documented inside the recharge zone include surface water, Highway 97 and the recreation area itself. A microscopic particulate analysis conducted in July 2001 concluded that the well is at low risk of surface water influence.

Water Quality History.

The Mineral Ridge water system has experienced recurrent episodes of bacterial contamination. A chlorinator was installed following a total coliform Maximum Contaminant Level violation in 1994. The system shut down for a month in 2001 when the chlorinator malfunctioned causing another total coliform MCL violation. Repairs were completed in August 2001. Total coliform bacteria were absent from monthly samples collected during the remainder of the 2001 operating season and this year.

An internal audit conducted by BLM determined that construction and operational deficiencies are the most likely cause for the episodes of bacterial contamination. A bleeder valve on a drop pipe below the pitless adapter, installed to prevent freezing, allows backflow. Contaminants introduced upstream of the well, most likely at the fiberglass storage tank, can be transported to the well by this backflow. The valve is also a source of entrained air that possibly dechlorinates the water, making it difficult to maintain the required chlorine residual in the distribution system.

The BLM audit also noted that the top of the well casing is less than 12 inches above grade, and is not surrounded with a sloped concrete pad. These construction features are required under IDEQ standards to keep contaminant laden surface water out of the well.

Annual nitrate tests show concentrations ranging from undetectable levels to 0.011 mg/l. The Maximum contaminant Level for nitrate is 10 mg/l.

Susceptibility to Contamination.

Based on its water sampling history, the BLM Mineral Ridge Recreation Area well is high risk for microbial contamination. Susceptibility to other classes of regulated contaminants is moderate. Sensitivity factors related to local geology added the most points to final susceptibility scores for the Mineral Ridge Recreation Area. The susceptibility analysis worksheet for your well on page 6 this report shows how your well was scored. Formulas used to compute the final susceptibility scores are at the bottom of the worksheet.

Source Water Protection.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

BLM Mineral Ridge Recreation Area water system was in compliance with the *Idaho Rules for Public Drinking Water Systems* when it was inspected in July 2001. Repairs to the chlorinator and maintenance on the upper reservoir overflow were undertaken quickly in response to the total coliform MCL violation that prompted the inspection. The system tests monthly instead of quarterly for total coliform during its operating season. This frequent testing provides a good check on how the system is functioning so any health threats can be dealt with directly. The construction deficiencies found during the BLM's own audit are scheduled for repair in fiscal year 2004.

Assistance.

Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

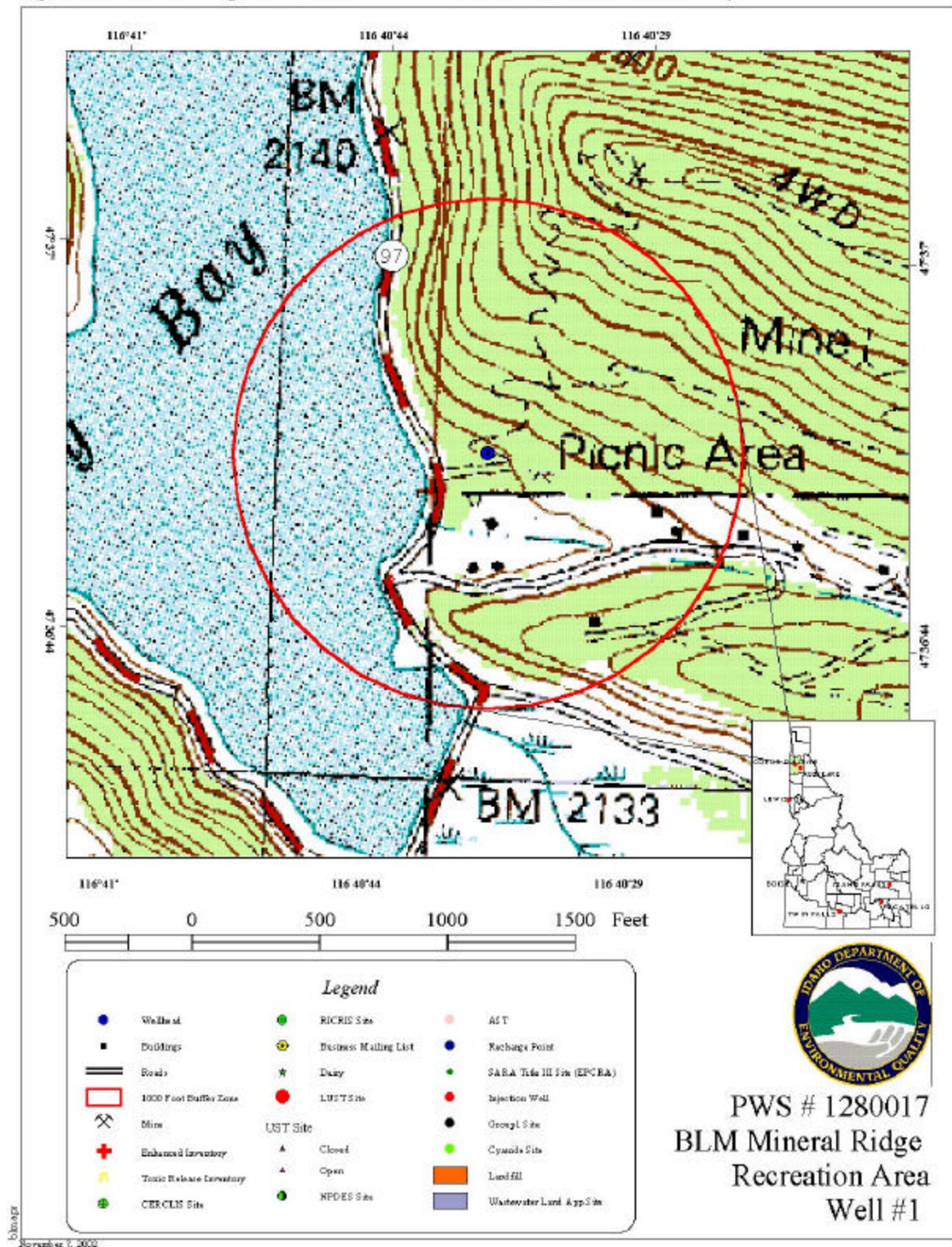
DEQ Website: www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper of the Idaho Rural Water Association (208) 343-7001 for assistance with drinking water protection strategies.

Idaho Rural Water Association Website: www.idahoruralwater.com

Home * A * Syst Website: www.uwex.edu/homeasyst

Figure 1. BLM Mineral Ridge Recreation Area Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name :

BLM MINERAL RIDGE RECREATION
SITE
1280017

Well :

WELL #1

Public Water System Number :

11/7/02 10:09:30 AM

1. System Construction		SCORE			
Drill Date	1974				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 2001				
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		1			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		5			
3. Potential Contaminant / Land Use		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use	WOODLAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback or in tested Well Water	YES	NO	NO	NO	YES
Total Potential Contaminant Source/Land Use Score		0	0	0	0
Potential Contaminant / Land Use - 1000_FOOT RADIUS					
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	1	
4 Points Maximum		1	1	1	
1000_Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 1000_Foot Radius	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000_Foot Radius		3	3	3	2
Cumulative Potential Contaminant / Land Use Score		3	3	3	2
4. Final Susceptibility Source Score		7	7	7	7
5. Final Well Ranking		Moderate	Moderate	Moderate	High

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ? Superfund? is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.